The Mining Institute of Scotland

Newsletter

Volume 4, Issue 2 June 2013

President's Message

Welcome to the June 2013 edition of The Mining Institute of Scotland Newsletter.

I wrote in the last edition of my hope that the severe problems being experienced in the Scottish opencast sector might ease. Sadly this was not to be and Scottish Coal entered liquidation in the middle of April with significant job losses, many in areas already experiencing high unemployment.

Hargreaves, who are now operating the former ATH sites, have been named as the preferred bidder for the former Scottish Coal sites, but at the time of writing it is not known which sites they will want to take on.

The problem of unrestored sites has been reported on national news channels and they are an unfortunate product of a struggling coal industry.

We can only hope that as many jobs as possible are generated in the coal industry in whatever form it finds itself.

It is ironic that on most days of the year, more electricity in the UK is still generated from coal-fired power stations than from any of the other sources, yet most of that coal is imported and our own mining industry is struggling.

On a lighter note, the History of The Mining Institute of Scotland project is still ongoing and our thanks go to everyone who has so far contributed and if anyone has an idea for something that might be included, please feel free to make a suggestion.

We are now entering the summer recess with the most recent event being the retired members' lunch in Ayrshire in May and the next being the sister event in September at Newtongrange.

I trust you all have a good summer and that the weather is kind to us for a change.

Ian Purdie bag284ip@aol.com

Oil & Gas Division Update

Last year the Petroleum and Drilling Engineering Division sought approval from the Institute of Materials, Minerals & Mining to change the Division name to the Oil and Gas Division to better reflect the interests of the Division members. The member surveys conducted in 2009 and 2011 had both shown that virtually all the Division members worked in the oil and gas industry but many members would not class themselves as either petroleum or drilling engineers. I am very pleased to advise you that after due consultation the Institute approved the change. The Division website and all Division documents have been re-titled. In addition a Division brochure has been produced, if you would like any copies please contact me. All existing members of the old Division will be transferred to the re-named Division.

The Division is one of the fastest growing Divisions in the Institute, having more than doubled membership in the last four years. The Division has an active programme, primarily based around the Aberdeen area, as detailed on the website. To continue to meet member needs and grow help is required. Please contact myself or any Board member if you would like to help the Division in any way. We have vacancies on the Board and would particularly like to hear from people outwith Aberdeen. We are looking to expand the oil and gas educational material on the Institute website and would welcome any material. We are also always looking for oil and gas related information to keep our website fresh. On behalf of the Division Board I hope that you find the Division name change a positive step and I would be pleased to receive any feedback that you have.

I am very pleased to advise you that Andrew Duncan, Manager of the UK Health and Safety Executive ageing infrastructure and life extension programme, has been elected to the Division Board. Andrew is a highly experienced engineer with deep metallurgical and corrosion expertise. He is a member of the Institute of Corrosion and will be able to help further enhance the relationship between our two Institutes.

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Oil & Gas Division Update cont'd

I would like to finish this update by reflecting on the tragic loss of 167 lives when the Piper Alpha platform burnt down twenty five years ago. As a result of this catastrophic event the UK implemented the most robust safety regime for oil and gas operations of any country. A key principle of the legislation is to strive for continuous improvement to reduce risk to "as low as reasonably practicable". In line with this principle, and in recognition of the Piper Alpha tragedy, Oil and Gas UK have organised a three day event (18 - 20 June at the Aberdeen Exhibition and Conference Centre) "Piper 25" to reflect, review, reinforce and re-energise offshore safety. While the conference will be focussed on offshore safety the topics will be of interest to any high risk industry. If you want to find out more there is a link from the Division website at www.iom3.org .

Steve Bedford
Oil & Gas Division Chairman

Centenary Scholarship

This IOM3 annual Scholarship (value £500/annum), which is restricted to first or second year undergraduates in student membership of the Institute, is awarded for projects, visits, etc in furtherance of the recipient's career development in the fields of minerals and mining. Stephan Farsang from the University of St Andrews was this year's award winner.

Stephan's application described how basaltic volcanism in the Cerová vrchovina Highlands of Slovakia occurred in six discrete episodes between 8.0 and 0.5 million years ago (Konečný et al., 2004). These volcanics are petrologically unusual in containing megacrystals, mantle xenoliths, and vesicle-filling minerals originating from high temperature fluids (e.g. magnetite, ilmenite, diopside, phlogopite, nepheline, marialite, sodalite) as well as more typical, low-temperature post-magmatic hydrothermal assemblages (e.g. aragonite, calcite, dolomite, natrolite, chabazite, phillipsite). The high-temperature mineralogy of the vesicle-filling assemblage is similar to that of the groundmass, supporting the idea that vesicles were filled originally under magmatic conditions. A few mineral species, in particular zirconolite ($CaZrTi_2O_7$), appear only to occur in the vesicles associated with drusy ilmenite and apatite clusters. The more common Rare Earth Element-rich (REE) accessory mineral, monazite, which is present in the groundmass of the basalt is not present in the cavities, underscoring the peculiar occurrence of zirconolite. Stephan aims to test the hypothesis of de Hoog & van Bergen (2000), who described zirconolite in vesicles in basalts from Lewotolo volcano, Indonesia that a fluid rich in REEs, uranium and thorium evolved from the basalt and precipitated zirconolite on the linings of the vesicles. A constant enrichment factor of trace elements in zirconolite relative to the bulk-rock composition would be able to support this hypothesis. A magma evolution model will also be constructed by comparing the trace element content of the zirconolite to that of vesicular apatite and groundmass monazite crystals.

Stephan will visit the Cerová vrchovina Highlands whilst home in Slovakia for the summer to collect samples. Basalt will be collected at the localities of Bulhary, Husina and Veľké Dravce. Then at St Andrews he will image the vesicles in three-dimensions using a super-resolution digital microscope and establish petrographic context using EPMA. After isolating zirconolite, apatite, and monazite crystals from a number of samples, he will measure REE profiles using liquid Laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS). The overall length of the project will be approximately 8 months.

Minerals for Life

The Mineralogical Society's conference *Minerals for Life: Overcoming Resource Constraints* will be held in Edinburgh during 17 - 19 June 2013. Details of the 14 planned sessions and registration for the conference can be found at www.minersoc.org/minerals-for-life.html. The Plenary lectures are:

Dr Jon Phipps (Imerys Minerals Ltd): *Engineering minerals for performance applications - an industrial perspective*
Dr Karen Hudson-Edwards (Birkbeck University London), Mineralogical Society Hallimond Lecturer: *Minerals in Mine Wastes: Resources, Recycling, Remediation*
Corina Hebestreit (Euromines): *The EU and its EIP on Raw Materials – securing Europe's future growth*

For those interested in applying for Chartered Scientist (CSci) status, a short workshop will be held during the conference (Tuesday, 18 June at 17.00 hours).

YPLC 2013

Joshua Hughes from the University of St Andrews represented Scotland in the National Final of the Young Persons' Lecture Competition 2013 held at the Armourers' Hall, London on 24 April. There he competed against five other regional winners. Although Joshua did not win, he said afterwards "I had a good time representing Scotland in London, it was a fantastic venue for the competition. I was happy with my presentation, but competition was very tough! There was lots of interest in the diamond potential of Scotland and Greenland from the audience during the reception afterwards, which was good! It was also very helpful to meet many members of the IOM3."

Joshua is arranging a two-day conference for academia and industry, in conjunction with Cardiff University on the topic of exploration within the North Atlantic Craton (Labrador, Greenland and Scotland) looking at how a craton specific approach can be used to drive successful exploration.

Joshua pictured at the YPLC 2013 Final

AN INSTITUTE EVENT IS THE PLACE TO MEET FRIENDS AND COLLEAGUES BOTH OLD AND NEW, WHY NOT JOIN WITH US?

CALENDAR OF EVENTS

TECHNICAL MEETINGS

THE DATES FOR YOUR DIARY IN 2013 ARE:

19 SEPTEMBER 2013 – 6.00PM AT LOCHSIDE HOTEL, NEW CUMNOCK

Mining for the future

SPEAKER: ALLAN DUFFY, FINNING UK

Video-conferencing links will **NOT** be available for this event

SOCIAL EVENT

11 SEPTEMBER 2013 – 12.00NOON AT THE NATIONAL MINING MUSEUM SCOTLAND, LADY VICTORIA COLLIERY, NEWTONGRANGE, MIDLOTHIAN

Retired Members' Lunch

Technical Presentation

Steve Bedford, IOM3 Oil & Gas (formerly Petroleum & Drilling Engineering) Division Chair, presented the annual joint IOM3/Energy Institute Technical Meeting talk to over 100 attendees at the Marcliffe Hotel in Aberdeen on 13 February 2013. His subject was the first issue of the Oil & Gas UK Well Integrity Guidelines, which were published in July 2012 as part of the UK Oil Industry response to the Macondo well blowout.

Steve co-chaired a workgroup tasked by the Oil & Gas Industry to produce Guidelines to describe good industry practice for maintaining well integrity, throughout the life cycle, and complying with UK Regulations for all wells drilled for the purpose of exploiting naturally occurring hydrocarbons in Great Britain, onshore and offshore. His presentation described the formation of the project team, the development and content of the Guidelines, and the next steps.

Fundamental to the Guidelines was the need to document good practice to help the industry meet requirements of the Offshore Installations & Wells (Design & Construction etc.) Regulations 1996, PART IV WELLS that require the well operator to ensure that 'as far as reasonably practicable' there can be no unplanned escape of fluids from the well. The 132-page document was comprehensively peer reviewed before publication and explains in simple and easy to understand terms what operators need to do to demonstrate 'as low as reasonably practicable' compliance.

Commenting after the meeting, Steve said "I am delighted to see such a large turnout for the meeting, despite the inclement weather and traffic congestion, it highlights the interest in this critical issue. Britain is already recognised as having one of the most robust oil and gas regulatory regimes in the world, now we are the only country to have full life cycle well integrity guidelines covering both onshore and offshore wells. As a past-President of The Mining Institute of Scotland, I was particularly pleased to be able to make a contribution that continues the founding objectives of the Institute, which were to improve safety and productivity in mining."

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Members can receive all correspondence by email. Please contact the Secretary if you wish to receive correspondence electronically but currently don't.